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PENSOFT

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# Annotated checklist of Scolytinae and Platypodinae (Coleoptera, Curculionidae) of Switzerland

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## Abstract

An updated checklist of the species belonging to the subfamilies Scolytinae and Platypodinae in Switzerland is presented and briefly discussed. A total of 113 species is confirmed. This checklist is based on 42836 occurrences obtained from the identification of specimens held in museum and private collections, as well as on records taken from the literature. Fifteen species recorded from Switzerland in the past are excluded from this list, for reasons of insufficient documentation.

## Key Words

Curculionidae, Scolytinae, Platypodinae, species list, Switzerland, faunistics, distribution

## Introduction

The subfamilies Scolytinae and Platypodinae have been the subject of several commented checklists for Switzerland (Stierlin and Gautard 1867; Stierlin 1898; Bovey 1987), the most recent by Germann (2010a). While each of these important contributions improved general knowledge of the local fauna, new elements have since become available that further improve our understanding of the Scolytinae and Platypodinae of Switzerland. First, Monnerat et al. (2015a) proposed a set of guidelines to assess the indigenousness of the species of Switzerland and provided a list of some problematic collections. Some species belonging to these collections were accepted as valid in previous works, but closer examination has revealed that these records are doubtful. Secondly, past surveys of specimens housed in museum collections were not complete and some species were missed. Consequently, an updated checklist of the species native to Switzerland was necessary.

This paper presents a commented and updated list of all Scolytinae and Platypodinae reported in Switzerland, based on a revision of the Swiss collections and a review of existing literature. Native species are thus distinguished from species that were mistakenly recorded, insufficiently documented or imported.

## Material and methods

The goal of this study was to evaluate all existing information in order to write up a complete list of the Swiss fauna. We therefore performed an exhaustive examination of the relevant material present in major Swiss museum collections, as was recently done for other beetle groups (Chittaro and Blanc 2012; Monnerat et al. 2015b; Breitenmoser et al. 2016; Chittaro and Sanchez 2016, 2019a, 2019b; Cosandey et al. 2017; Sanchez and Chittaro 2018). The collections in the following museums were studied (parentheses indicate the contact person):

**AGRO** Agroscope-Changins (previously SFRA), Nyon (Stève Breitenmoser)
**BNM** Bündner Natur-Museum, Chur (Stephan Liersch)

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**ETH** Eidgenössische-Technische Hochschule, Zürich (Michael Greeff)
**KMLI** Archäologie und Museum Baselland, Liestal (Marc Limat)
**MHNF** Musée d'histoire naturelle de Fribourg (Peter Wandeler, Sophie Giriens)
**MHNG** Muséum d'histoire naturelle de Genève (Giulio Cuccodoro)
**MHNN** Musée d'histoire naturelle de Neuchâtel (Jessica Litman)
**MHNS** Musée de la nature du Valais, Sion (Sonja Gerber)
**MSNL** Museo cantonale di storia naturale, Lugano (Michele Abderhalden)
**MZL** Musée cantonal de zoologie, Lausanne (Anne Freitag)
**NMAA** Naturama, Aarau (Janine Mazenauer)
**NMB** Naturhistorisches Museum Basel (Matthias Borer)
**NMBE** Naturhistorisches Museum der Burgergemeinde Bern (Hannes Baur)
**NMLU** Natur-Museum, Luzern (Marco Bernasconi, Peter Herger)
**NMTG** Naturmuseum Thurgau, Frauenfeld (Barbara Richner)
**NMSG** Naturmuseum, St. Gallen (Priska Seri)
**NMSO** Naturmuseum, Solothurn (Marc Neumann)
**SPZH** Schädlingsprävention und –beratung, Zürich (Marcus Schmidt, Gabi Müller, Isabelle Landau-Lüscher)
**WSL** Swiss Federal Institute for Forest, Snow and Landscape Research, Birmensdorf (Beat Forster, Martin Obrist, Beat Wermelinger).

Moreover, the private collections of the following people were examined: Ulrich Bense (Mössingen, Germany), Georg Benz (Zürich, Switzerland), Marie-Christine and Yannick Chittaro (Conthey, Switzerland), Raymond Delarze (Aigle VD, Switzerland), Laurent Gognat (St-Ursanne JU, Switzerland), Roman Graf (Horw LU, Switzerland), Barbara Huber (Thusis GR, Switzerland), Laurent Juillerat (Chézard-St-Martin NE, Switzerland), Wilfried Löderbusch (Markdorf, Germany), Sandro Moser (Aarau AG, Switzerland) and Andreas Sanchez (Pont-de-la-Morge VS, Switzerland).

All available data from the literature relevant for Switzerland were also considered. The references from these publications are included in the bibliography. Literature not explicitly quoted is supplied as Suppl. material (see Suppl. material 1: File S1).

Nomenclature and systematics followed are those of the "Cooperative Catalogue of Palaearctic Coleoptera Curculionoidea" (Alonso-Zarazaga et al. 2017), with the following exceptions. At first, *Pagiocerus frontalis* (Fabricius, 1801) is absent from this catalog and therefore Wood (2007) was followed. Secondly, we consider *Pityophthorus knoteki* Reitter, 1898 and *P. lichtensteinii* (Ratzeburg, 1837) as valid species, even though they are considered as synonyms by Alonso-Zarazaga et al. (2017). Thirdly, we follow Mandelshtam et al. (2019) and consider the resurrection of *Heteroborips cryptographus* (Ratzeburg, 1837).

The specimens were identified using the following publications: Balachowsky (1949), Pfeffer (1995) and Gebhardt and Bense (2016).

When not otherwise specified, general information on species' distributions is taken from the "Cooperative Catalogue of Palaearctic Coleoptera Curculionoidea" (Alonso-Zarazaga et al. 2017) and the catalog of Pfeffer (1995). Information on ecology and host plants come from Pfeffer (1995) and Balachowsky (1949), which are thus not cited in the texts related to the species.

The list of the main synonyms of each taxon is provided in Alonso-Zarazaga et al. (2017) and is therefore not reported here.

Terminology for all plant names mentioned in the document follows Juillerat et al. (2017).

Once an exhaustive list of species was compiled, we followed the procedure proposed by Monnerat et al. (2015a) in order to assess which of these species should be considered indigenous to Switzerland. We only retained species whose relative data were deemed sufficient (unambiguous labeling, reliable collections, etc.) for inclusion on the national checklist.

Those species whose presence in Switzerland is substantiated by less than twenty valid observations are subject to an additional comment. In these cases, species names in the table are followed by a letter and a number in bold ("**C1**" for example) and all the examined specimens and published observations are mentioned in order to document and justify the presence of these species on this checklist. When not specified, all examined material was identified or reviewed by the authors.

The examined specimens and literature-based data are presented in chronological order of discovery or publication date and then in alphabetical order by the respective locality depending on available information. All occurrences are cited according to the following scheme: number of specimens, locality (pre-2000 data) or municipality and abbreviated canton (post-2000 data), date, collector, determinator, collection and official acronym of the institution where the insect is deposited.

Information about localities and dates are reported as found on the labels. Interpretations of alphabetical abbreviations are placed within square brackets ("[ ]"). In old collections, the collector (leg.) is not always explicitly labeled. In such cases, we favored the « coll. » tag. In some cases, the original collection holder was not labeled but we were nonetheless able to identify the source of the collection based on type labels and/or handwriting.

The Charles Maerky collection, held by the Natural History Museum of Geneva, has long been considered problematic (Monnerat et al. 2015a). In addition to specimens coming from his personal collection ("coll. Maerky C."), it also contains insects from other sources (labeled, for instance, as "ex coll. Melly A.") but lacking any original labels. In such cases, we maintained the "coll. Maerky C." mention for his whole collection to

ensure the association of these samples with the Maerky C. collection.

For the literature-based data, detailed under "Published data", we retained the locality as it appeared in the original citation. We consider the "source" person (and not the legit) as the author of the publication and mentioned as follows: "Ormontsthal by Venetz I. (Stierlin and Gautard 1867)". If the same data is repeated several times in publications, then only the oldest is kept. In fact, localities in ulterior publications are generally altered and sometimes truncated.

In their important works on Scolytinae, Bovey (1987) mainly proposed general distribution maps, Germann (2010a) proposed tables with presence/absence data for each of the biogeographic regions of Switzerland (Gonseth et al. 2001). Knížek (2011a) and Alonso-Zarazaga et al. (2017) only mentioned presence in Switzlerand ("SZ"). In the present paper, this general information is grouped under "Published data" as follows: "Switzerland (Bovey 1987; Germann 2010a; Knížek 2011a; Alonso et al. 2017)". When specific data are mentioned in these four papers, they are included under "Published data".

Among the data cited in this document under "Examined material" or "Published data", we inserted a superscript numbering before those entries we considered too insufficiently documented to retain, using the following code to describe error type (following Monnerat et al. 2015a). Thus, if a data fulfills one of these criteria, it is considered as doubtful:

1. data source cannot be verified
2. incorrect identification
3. specimen from problematic collection
4. specimen of unknown origin but attributed to a Swiss locality
5. double labeling, original locality misinterpreted or incorrectly recopied
6. confusion between the locality of origin, the breeding or hatching place and the collection storage site
7. non-Swiss localities or namesake foreign localities
8. chronological or ecological inconsistencies

Abbreviations used: coll. = collection, det. = determinator, ex. = specimen, leg. = collector, abbreviated Swiss cantons: AG = Aargau, BE = Bern, BL = Basel-Landschaft, GE = Geneva, GR = Graubünden, SG = St. Gallen, SO = Solothurn, SZ = Schwyz, TI = Ticino, VD = Vaud, VS = Valais, ZH = Zürich.

# Results

## Swiss fauna Scolytinae and Platypodinae list

We consider that the 113 taxa listed in bold and without square brackets "[ ]" either do or did form populations in Switzerland, even if only scant information is available for many of them. We also consider as native several species from other parts of the world (alien species) that maintain (or maintained) continuous populations in Switzerland for several years, including strictly synanthropic species. These species are (or were) established in Switzerland and are (or were) part of its resident fauna.

On the other hand, the 15 species listed in square brackets "[ ]" should not be considered as belonging to the Swiss fauna, until new data show otherwise. In this category, we placed species whose individuals come from problematic collections, as Charles Maerky's or Max Täschler's (Monnerat et al. 2015a), those that were erroneously mentioned for Switzerland due to incorrect identifications and those cited in old publications, like Stierlin and Gautard (1867), without reference to specific individuals and consequently considered as doubtful. Other species may eventually be found in the Swiss territory, but currently available data are not sufficient to confirm their establishment in Switzerland.

To facilitate the species' search in this document, taxa appear in alphabetical order for subfamilies, tribes, genera, subgenera, species and subspecies.

All collected information represent 42'836 occurrences within the concerned subfamilies. Updated distribution maps of these species are available on the info fauna – CSCF cartographic server (http://lepus.unine.ch/carto/). All the valid data are also available in http://www.GBIF.org (https://doi.org/10.15468/dl.tryac2).

### Platypodinae Shuckard, 1840

Platypodini Shuckard, 1840

***Platypus cylindrus* (Fabricius, 1792)**

### Scolytinae Latreille, 1804

Bothrosternini Blandford, 1896

[*Pagiocerus frontalis* (Fabricius, 1801)] **C1**

Corthylini LeConte, 1876

***Gnathotrichus materiarius* (Fitch, 1858) C2**
***Pityophthorus buyssoni buyssoni* Reitter, 1901 C3**
***Pityophthorus carniolicus* Wichmann, 1910 C4**
***Pityophthorus exsculptus* (Ratzeburg, 1837) C5**
***Pityophthorus glabratus* Eichhoff, 1878**
***Pityophthorus henscheli* Seitner, 1887**
***Pityophthorus knoteki* Reitter, 1898**
***Pityophthorus lichtensteinii* (Ratzeburg, 1837)**
[*Pityophthorus micrographus micrographus* (Linnaeus, 1758)] **C6**
***Pityophthorus pityographus pityographus* Ratzeburg, 1837**
***Pityophthorus pubescens* (Marsham, 1802)**

Cryphalini Lindemann, 1876

***Cryphalus asperatus* (Gyllenhal, 1813)**
***Cryphalus intermedius* Ferrari, 1867**
***Cryphalus piceae* (Ratzeburg, 1837)**
***Cryphalus saltuarius* Weise, 1891**

***Ernoporicus caucasicus* (Lindemann, 1876)**
***Ernoporicus fagi* (Fabricius, 1798)**
***Ernoporus tiliae* (Panzer, 1793)**
[*Scolytogenes jalappae* (Letzner, 1849)] **C7**
***Trypophloeus binodulus* (Ratzeburg, 1837) C8**
[*Trypophloeus granulatus* (Ratzeburg, 1837)] **C9**
***Trypophloeus rybinskii rybinskii* Reitter, 1895 C10**

## Crypturgini LeConte, 1876

***Crypturgus cinereus* (Herbst, 1794)**
***Crypturgus hispidulus* C. G. Thomson, 1870**
***Crypturgus pusillus* (Gyllenhal, 1813)**
***Crypturgus subcribrosus* Eggers, 1933 C11**

## Dryocoetini Lindemann, 1876

[*Coccotrypes dactyliperda* (Fabricius, 1801)] **C12**
[*Dactylotrypes longicollis* (Wollaston, 1864)] **C13**
***Dryocoetes alni* (Georg, 1856)**
***Dryocoetes autographus* (Ratzeburg, 1837)**
***Dryocoetes hectographus* Reitter, 1913**
***Dryocoetes himalayensis* Strohmeyer, 1908 C14**
***Dryocoetes villosus villosus* (Fabricius, 1792)**
[*Lymantor aceris aceris* (Lindemann, 1875)] **C15**
***Lymantor coryli* (Perris, 1855)**
***Taphrorychus bicolor* (Herbst, 1794)**
***Taphrorychus siculus* Eggers, 1908 C16**
***Taphrorychus villifrons* (Dufour, 1843)**
***Thamnurgus kaltenbachii* Bach, 1849 C17**

## Hylastini LeConte, 1876

***Hylastes angustatus* (Herbst, 1793)**
***Hylastes ater* (Paykull, 1800)**
***Hylastes attenuatus* Erichson, 1836**
***Hylastes brunneus* (Erichson, 1836)**
***Hylastes cunicularius* Erichson, 1836**
[*Hylastes fallax* Wichmann, 1911] **C18**
***Hylastes linearis* Erichson, 1836**
***Hylastes opacus* Erichson, 1836**
***Hylurgops glabratus* (Zetterstedt, 1828)**
***Hylurgops palliatus* (Gyllenhal, 1813)**

## Hylesinini Erichson, 1836

***Hylastinus fankhauseri* Reitter, 1895**
***Hylastinus obscurus* (Marsham, 1802)**
***Hylesinus crenatus* (Fabricius, 1787)**
***Hylesinus toranio* (D'Anthoine, 1788)**
***Hylesinus varius* (Fabricius, 1775)**
***Hylesinus wachtli orni* Fuchs, 1906**
***Kissophagus novaki* Reitter, 1894 C19**
***Kissophagus vicinus* (Comolli, 1837)**
***Pteleobius kraatzii* (Eichhoff, 1864) C20**
***Pteleobius vittatus* (Fabricius, 1792) C21**

## Hylurgini Gistel, 1848

***Dendroctonus micans* (Kugelann, 1794)**
***Hylurgus ligniperda* (Fabricius, 1787) C22**
***Tomicus minor* (Hartig, 1834)**
***Tomicus piniperda* (Linnaeus, 1758)**
***Xylechinus pilosus* (Ratzeburg, 1837)**
***Xylocleptes bispinus* (Duftschmid, 1825)**

## Hypoborini Nüsslin, 1911

***Hypoborus ficus* Erichson, 1836 C23**
[*Liparthrum bartschti* Mühl, 1891] **C24**

## Ipini Bedel, 1888

***Ips acuminatus* (Gyllenhal, 1827)**
***Ips amitinus* (Eichhoff, 1872)**
***Ips cembrae* (Heer, 1836)**
***Ips duplicatus* (C. R. Sahlberg, 1836) C25**
***Ips sexdentatus* (Boerner, 1766)**
***Ips typographus* (Linnaeus, 1758)**
[*Orthotomicus erosus* (Wollaston, 1857)] **C26**
***Orthotomicus laricis* (Fabricius, 1792)**
***Orthotomicus longicollis* (Gyllenhal, 1827)**
[*Orthotomicus mannsfeldi* (Wachtl, 1880)] **C27**
***Orthotomicus proximus* (Eichhoff, 1868)**
***Orthotomicus suturalis* (Gyllenhal, 1827)**
***Pityogenes bidentatus* (Herbst, 1784)**
[*Pityogenes bistridentatus* (Eichhoff, 1878)] **C28**
***Pityogenes chalcographus* (Linnaeus, 1760)**
***Pityogenes conjunctus* Reitter, 1887**
[*Pityogenes irkutensis monacensis* Fuchs, 1911] **C29**
***Pityogenes quadridens* (Hartig, 1834)**
***Pityogenes trepanatus* (Nördlinger, 1848)**
***Pityokteines curvidens* (Germar, 1824)**
***Pityokteines spinidens* (Reitter, 1895)**
***Pityokteines vorontzowi* Jakobson, 1896**

## Phloeosinini Nüsslin, 1912

***Phloeosinus aubei* (Perris, 1855)**
***Phloeosinus thujae* (Perris, 1855)**

## Phloeotribini Chapuis, 1869

[*Phloeotribus cristatus* (Fauvel, 1889)] **C30**
***Phloeotribus rhododactylus* (Marsham, 1802)**
***Phloeotribus scarabaeoides* (Bernard, 1788)**
***Phloeotribus spinulosus* (Rey, 1883)**

## Polygraphini Chapuis, 1869

***Carphoborus minimus* (Fabricius, 1798)**
***Polygraphus grandiclava* C. G. Thomson, 1886**
***Polygraphus poligraphus* (Linnaeus, 1758)**
***Polygraphus subopacus* C. G. Thomson, 1871 C31**

## Scolytini Latreille, 1804

***Scolytus carpini* (Ratzeburg, 1837) C32**
***Scolytus ensifer* Eichhoff, 1881 C33**
***Scolytus intricatus* (Ratzeburg, 1837)**
***Scolytus kirschii kirschii* Skalitzky, 1876 C34**
***Scolytus laevis* Chapuis, 1869**
***Scolytus mali* (Bechstein, 1805)**
***Scolytus multistriatus* (Marsham, 1802)**
***Scolytus pygmaeus* (Fabricius, 1787)**
***Scolytus ratzeburgii* E. W. Janson, 1856**
***Scolytus rugulosus* (P. W. Müller, 1818)**
***Scolytus scolytus* (Fabricius, 1775)**
[*Scolytus triarmatus* (Eggers, 1912)] **C35**

## Xyleborini LeConte, 1876

***Anisandrus dispar* (Fabricius, 1792)**
***Cyclorhipidion bodoanum* (Reitter, 1913) C36**
***Heteroborips cryptographus* (Ratzeburg, 1837) C37**
***Xyleborinus attenuatus* (Blandford, 1894) C38**
***Xyleborinus saxesenii* (Ratzeburg, 1837)**
***Xyleborus dryographus* (Ratzeburg, 1837)**
***Xyleborus eurygraphus* (Ratzeburg, 1837) C39**
***Xyleborus monographus* (Fabricius, 1792)**
***Xyleborus pfeilii* (Ratzeburg, 1837) C40**
***Xylosandrus crassiusculus* (Motschulsky, 1866) C41**
***Xylosandrus germanus* (Blandford, 1894)**

## Xyloterini LeConte, 1876

***Trypodendron domesticum* (Linnaeus, 1758)**
***Trypodendron laeve* Eggers, 1939 C42**
***Trypodendron lineatum* (Olivier, 1795)**
***Trypodendron signatum* (Fabricius, 1792)**

## Commented species

### C1) [*Pagiocerus frontalis*] (Fabricius, 1801)

**Examined material.** [6,8)]? ex., Stadt Zürich, 2.XII.1996, leg. & coll. Anonymous, SPZH.

**Published data.** [6,8)]"Vorratsschädling an Mais in Zürich im Jahr 1996, Beratungsfall der Beratungsstelle Schädlingsbekämpfung, Zürich" (Germann 2010a).

**Comment.** As shown by Germann (2010a) and confirmed by Beat Forster (pers. comm.), *P. frontalis* was introduced in 1996 in Switzerland by a tourist in possession of ornamental corn seeds from Peru, but the population was eradicated. The species is not established in Switzerland.

### C2) *Gnathotrichus materiarius* (Fitch, 1858)

**Examined material.** 1 ex., Buchenegg-Passhöhe, Müsli, 3.V.1984, leg. & coll. Hirschheydt J.; 1 ex., Therwil Umg. BL, 12.V.1984, leg. Studer M., MHNG; 1 ex., Jura BE, Burg, VI.1984, leg. Toumayeff G., MHNG; 2 ex., Genève, Chancy, Vers Vaux, 6.VI.1987, 14.VI.1988, leg. Besuchet C., MHNG; 2 ex., Rickenbach SO, 2.–9.VI.1994, 4.–11.V.1995, leg. WSL; ? ex., Thayngen SH, 2.XII.1996, leg. & coll. Anonymous, SPZH; 6 ex., Habsburg AG, 1.–8.V.2015, 8.–15.V.2015, 29.V.–5.VI.2001, 10.–17.VII.2001, 8.–15.VIII.2001, leg. WSL; 14 ex., Rapperswil-Jona SG, 7.V.2015, 28.V.2015, 18.VI.2015, 7.VII.2015, 20.VIII.2015, leg. Huber B., det. Büche B.; 4 ex., Oberentfelden AG, 27.V.2015, 8.VII.2015, 22.VII.2015, leg. Moser S., det. Bense U.

**Published data.** 1 ex., Buchenegg-Passhöhe, Müsli, 3.–10.V.1984, leg. Hirschheydt J.; ? ex., Burg/Leymental BE, leg. Toumayeff G.; 1 ex., Bois de Vers Vaux bei Chancy GE, 16.VI.1987, leg. Besuchet C.; 1 ex., Bois de Vers Vaux bei Chancy GE, 14.VI.1988, leg. Besuchet C. (Hirschheydt 1992); Switzerland (Germann 2010a; Kirkendall and Faccoli 2010; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This invasive species, native to the United States and Canada, was first found in northern Switzerland in 1984 but was not reported by Bovey (1987). Since these first records, it has been found several times, in the north of Switzerland and once in the Geneva region, under the bark of pine trees. Developing on various conifers (*Pinus* spp., *Abies alba*, *Larix decidua*), this species would likely be able to colonize the remaining regions of the country in the future. Bovey (1987) warned of the serious damages that *G. materiarius* could cause to Swiss forests, but so far, no major problems caused by this species have been reported.

### C3) *Pityophthorus buyssoni buyssoni* Reitter, 1901

Fig. 1A

**Examined material.** 1 ex., Vaud, La Rippe, 3.VI.1979, leg. Besuchet C., MHNG; 1 ex., s/Trétien VS, VII.1980, leg. Toumayeff G., MHNG.

**Published data.** [2)]3 ex., Derborence by Conthey, VIII.1949 by Besuchet C. (Linder 1953); Switzerland (Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** *P. buyssoni buyssoni* is considered as Swiss species on the basis of two specimens captured in the south of the country. The species is sparsely distributed in the Palearctic region (Bulgaria, France, Greece, Italy and Spain) and develops on pine trees, as it was the case for the individual from "La Rippe", found on a *Pinus sylvestris* twig. The specimens cited by Linder (1953) were in fact *Pityophthorus glabratus*, as previously shown by Bovey (1987). Bovey (1987) and Germann (2010a) did not consider this species as Swiss despite the presence of two valid specimens in museum collections.

### C4) *Pityophthorus carniolicus* Wichmann, 1910

**Examined material.** 1 ex., Tessin, Mte. Generoso, 9.VI.1962, leg. Besuchet C., det. Bovey P., MHNG; 1 ex., Tessin, Generoso, 26.V.1982, leg. Besuchet C., det. Bovey P., MHNG; 1 ex., Pura TI, 3.–10.IV.2007, leg. WSL.

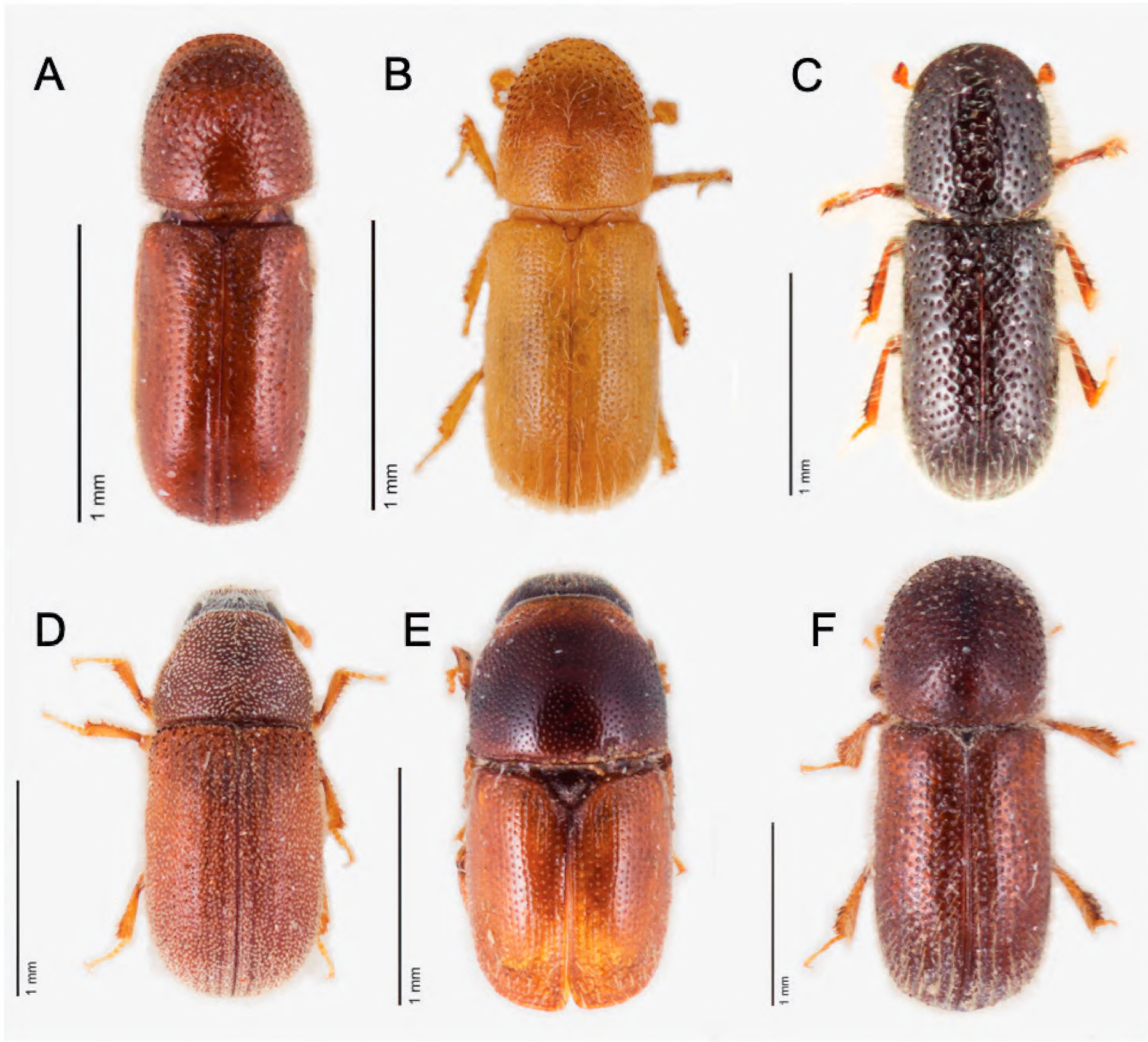


**Figure 1.** Habitus of six rare species of Scolytinae present in Switzerland: **A**) *Pityophthorus buyssoni buyssoni*, **B**) *Taphrorychus siculus,* **C**) *Thamnurgus kaltenbachii*, **D**) *Polygraphus subopacus*, **E**) *Scolytus kirschii kirschii*, **F**) *Xyleborus cryptographus* (Photos A. Sanchez).

**Published data.** 1 ex., Monte Generoso TI, 9.VI.1962, 1700m, and 26.V.1982, 1680m by Besuchet C., MHNG (Bovey 1976); Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species, distributed in Austria, Croatia, Czechia, France, Germany, Hungary, Italy, Poland, Slovakia and Slovenia, is considered Swiss based on three specimens collected in Tessin. Developing mainly on pines (*Pinus nigra* and *P. sylvestris*), its range in Switzerland is probably wider and specific exploratory research should be undertaken to better evaluate its distribution (Faccoli and Battisti 2011).

### C5) *Pityophthorus exsculptus* (Ratzeburg, 1837)

**Examined material.** 1 ex., Wangs, Pizol, 13.VII.1958, leg. Anonymous, coll. Spälti A., MHNG; 66 ex., Thurgovie, Kesswil, 10.IV.1982, 17.I.1983, leg. Besuchet C., MHNG; 34 ex., Thurg., Kesswil, VI.1983, leg. Besuchet C., MHNG; 9 ex., Kesswil, 17.I.1983, leg. Besuchet C., coll. Scherler P. & coll. Bovey P., NMBE & MZL; 1 ex., Wengi BE, 2.–9.VII.1987, leg. WSL, det. Klausnitzer B.; 1 ex., Ruppoldsried, 25.VI.-2.VII.1987, leg. WSL, det. Klaunitzer B.; 2 ex., Glaris, Ennenda, III.1994, leg. Besuchet C., MHNG.

**Published data.** Kesswil TG, 10.IV.1982 and VI.1982 by Besuchet C. (Bovey 1987); Switzerland (Germann 2010a, Knížek 2011a, Alonso-Zarazaga et al. 2017).

**Comment.** This species, which develops exclusively in branches on standing moribund spruce trees (*Picea abies*) and pine trees (*Pinus* spp.) (Balachowsky 1949), is only known from Central Europe. In Switzerland, only scant data attest to its presence, all records dating back more than 20 years from branches of *Picea abies*.

**C6) [*Pityophthorus micrographus micrographus*] (Linnaeus, 1758)**

**Published data.** [1)]Basel by Imhof L., [1)]Genf [Geneva] by Chevrier F. and [1)]Kant. Zürich by Fuesslin J. C. (Stierlin and Gautard 1867); [1)]Lausanne by Bugnion E. (Favre 1890); [1)]Chiasso by Fontana P. (Fontana 1947); [1)]Frauenfeld, Burgerholz by Hugentobler H. (Hugentobler 1966); [1)]Switzerland (Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** No specimen was found in the examined collections to support citations in the literature. Thus, *P. micrographus micrographus* is not considered a native species at present. This species, which develops on *Picea obovata* Ledeb., *P. abies* and *Abies sibirica* Ledeb., is widely distributed in Europe but relatively rare. As its preferred host plants are abundant in Switzerland, it may be discovered here in the future.

**C7) [*Scolytogenes jalappae*] Letzner, 1849**

**Published data.** [2)]Chiasso by Fontana P. (Fontana 1947).

**Comment.** Reported from Chiasso by Fontana P. (1947), the only specimen found in his collection in the MSNL under *Pityophthorus jalappae* belongs in reality to the family Ciidae! *Scolytogenes jalappae*, a species widespread in America, is not present in Switzerland, although it was imported several times to Europe.

**C8) *Trypophloeus binodulus* (Ratzeburg, 1837)**

**Examined material.** 4 ex., Bicoque [Préverenges VD], 3.VII.1949, leg. Besuchet C., MHNG; 60 ex., Vaud, Agiez, 7.VII.1949, 8.VII.1949, 9.VII.1949, III.1950, 25.V.1950, 5.II.1951, leg. Besuchet C., MHNG; 1 ex., Agiez s/Orbe, 10.VIII.1949, leg. Besuchet C., MHNG; 44 ex., Vaud, Aigle, 27.IX.1953, IX.1954, leg. Besuchet C., MHNG; 12 ex., Genève, Jussy, 19.VI.1974, leg. Besuchet C., MHNG; 20 ex., Genève, Chancy, 2.VII.1974, leg. Besuchet C., MHNG; 1 ex., Valais, Forêt de Finges, 1.VIII.1974, leg. Besuchet C., MHNG; 14 ex., Tessin, Is. Brissago, 10.VII.1976, leg. Besuchet C., MHNG; 12 ex., Genève, Mategnin, 4.VII.1984, leg. Besuchet C., MHNG; 1 ex., Genève, Onex, 7.VIII.1992, leg. Besuchet C., MHNG; 57 ex., Vaud, Onnens-Lac, 14.VII.1993, leg. Besuchet C., MHNG; 2 ex., Genève, Corsier-Port, VI.1994, leg. Besuchet C., MHNG; 10 ex., Vaud, Bursinel, 25.VIII.1994, leg. Besuchet C., MHNG.

**Published data.** Orbe, VI.1949, V.1950, leg. Besuchet C. (under *T. asperatus*) (Linder 1953); many data in Switzerland under *T. asperatus* (Gyllenhal, 1813) (Bovey 1987); [1)]Bassecourt (JU) (under *Cryphalus abietis*) and [1)]TG (under *T. asperatus spiculatus*) (Meier et al. 1995); 1 ex., Aigle VD, 27.IX.1953, leg. Besuchet C., MHNG and 1 ex., Pfynwald VS, 1.VIII.1974, leg. Besuchet C., MHNG (under *T. asperatus asperatus* (Gyllenhal, 1813), *T. asperatus grothi* Hagedorn, 1904 and *T. asperatus spiculatus* Eggers, 1927) (Germann 2010a); 1 ex., Aigle VD, 27.IX.1953, leg. Besuchet C., 2 ex., Isola Brissago TI, VII.1976, leg. Besuchet C. and 1 ex., Pfynwald VS, leg. Besuchet C. (under *T. asperatus grothi* Hagedorn, 1904) (Germann 2010b); Switzerland (Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species, widely cited in the literature under different subspecies of *T. asperatus*, is considered Swiss on the basis of several specimens collected from different localities. All were collected by Besuchet C. under the bark of different species of *Populus*, which is the only genus of host plant known for this species.

**C9) [*Trypophloeus granulatus*] (Ratzeburg, 1837)**

**Published data.** [2)]7 ex., Arnex VD, 25.VI.1950 and [2)]1 ex., Finges VS, 1.VIII.1974 by Besuchet C. (Bovey 1987); [1)]Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species was first cited by Bovey (1987) on the basis of seven specimens collected by Besuchet C. in the Valais and in Vaud. After a careful examination of Swiss collections, we found a serie of specimens of *T. binodulus* bearing identical labels to those records reported in Bovey (1987) for *T. granulatus*. The misidentification of *T. binodulus* for *T. granulatus* is thus likely. *Trypophloeus granulatus*, a species known from central and southern Europe and developing on poplars, is not considered as indigenous in Switzerland at the moment. Known from all neighboring countries, we consider that it has the potential to expand its distribution into Switzerland.

**C10) *Trypophloeus rybinskii rybinskii* Reitter, 1895**

**Examined material.** 2 ex., Val Müstair, Fuldera, 17.VII.2018, leg. Huber B., det. Büche B., BNM; 1 ex., Val Müstair, Sta. Maria, Aue, 21.VIII.2018, leg. Huber B., det. Büche B.

**Comment.** *Trypophloeus rybinskii*, a species widely distributed in central Europe, is considered as Swiss on the basis of three specimens found in Graubünden in 2018, using flight and beer traps. It develops on different species of *Salix* and *Populus*.

**C11) *Crypturgus subcribrosus* Eggers, 1933**

**Examined material.** 4 ex., Genève, B. Merdisel, 17.VIII.1974, leg. Besuchet C., MHNG; 15 ex., Kt. Bern, Burgdorf Meienm., 21.II.1980, leg. Kiener S., MHNG; 11 ex., Genève, Avully, 10.V.1993, leg. Besuchet C., MHNG; 7 ex., Wynigen, Riederenwald BE, 15.XII.1993, leg. & coll. Kobel E., NMBE. *Published data*: Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** In agreement with Jordal and Knížek (2007), we consider *C. subcribrosus* as a valid species, separated from *C. cinereus*. This species, distributed in north-eastern Europe and also present in France (Dodelin

B. and Soldati F. pers. comm.), has been found only a few times in Switzerland, always under the bark of spruces (*Picea* spp.). It is possible that other Swiss specimens attributed to *C. cinereus* may turn out to be *C. subcribrosus* and therefore all specimens should be revised. Bovey (1987) did not consider the species as resident.

### C12) [*Coccotrypes dactyliperda*] (Fabricius, 1801)

**Examined material.** [3,4,6,8)]3 ex., Genève, coll. Maerky C., MHNG; [3,4,6,8)]1 ex., Genève, coll. Maerky C., ex coll. Melly A., MHNG; [3,4,6,8)]1 ex., Genf [Geneva], coll. Linder-Hebeisen A., ex coll. Täschler M., ETH; [4,6,8)]2 ex., Schaffhausen, leg. Stierlin G., det. Bovey P., Deutsches Entomologisches Institut; [4,6,8)]9 ex., Zürich ZH, III.1977, leg. & coll. Bovey P., MHNG & MZL.

**Published data.** [1,4,6,8)]Genf [Geneva] by Chevrier F. and [1,4,6,8)]Genf [Geneva] by Tournier H. (Stierlin and Gautard 1867); [1,4,6,8)]Schaffhausen, in Magazinen der Früchtenhändler (Stierlin 1898); [1,6,8)]4 ex., Genève and Zürich, EPFZ Institut de sylviculture, graines de *Phoenix dactylifera*, 1977 by Marcet (Bovey 1987); [1,6,8)]Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species, developing on palm fruits from *Phoenix dactylifera* (Linnaeus, 1753) and *Chamaerops humilis* (Linnaeus, 1753), is native to central and western Mediterranean areas only but is regularly imported to the rest of Europe. In Switzerland, it is only known from specimens housed in a problematic collection (Maerky C.) that should not be taken in account, or from three different attested importations: in Schaffhausen in a fruits market, and in Geneva and Zürich with seeds from *P. dactylifera*. The species does not develop in the wild in Switzerland and is thus not considered as a resident, even if many palms grow in cities.

### C13) [*Dactylotrypes longicollis*] (Wollaston, 1864)

**Examined material.** [6,8)]44 ex., Kt. Bern, Thun, 20.I.1983, leg. Marggi W., coll. Kiener S., coll. Bovey P., coll. Scherler P., MHNG, MZL & NMBE.

**Published data.** [6,8)]Thoune BE, graines de Palmier, I.1983 by Marggi W. (Bovey 1987); [6,8)]Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** Several specimens were found in Thun in 1983, all hatched from palm seeds. *Dactylotrypes longicollis*, indigenous to the Canary Islands and Madeira, was introduced several times to Europe (Croatia, southern France, Italy, Malta, Slovakia, mainland Spain). The species develops in seeds of different species of date palm (Arecaceae) (Labonte and Takahashi 2012). Even if Bovey (1987) considered this species as part of the Swiss fauna (under *Dactylotripes uyttenboogaarti* Eggers, 1927), palm trees are not native to Switzerland and no specimens have ever been found in the wild. Therefore, it cannot be considered as belonging to the Swiss fauna.

### C14) *Dryocoetes himalayensis* Strohmeyer, 1908

**Examined material.** 1 ex., Altdorf, Vogelsang UR, VII.1980, leg. Reser-Rezbanyai L., coll. Knížek M.; 1 ex., Brugg AG, 8.–15.V.2001, leg. WSL; 1 ex., Habsburg AG, 11.–18.VI.2001, leg. WSL; 1 ex., Sarmenstorf AG, 2.–9.VIII.2004, leg. WSL.

**Published data.** 2 ex., Habsburg AG, 2001, det. M. Knížek "mit Restunsicherheit" (Germann 2010a); Switzerland (Kirkendall and Faccoli 2010, Knížek 2011a, 2011b, Alonso et al. 2017); 3 ex., Schweiz, Kanton Aargau, Oberenfelden, 27.V.–8.VII.2015, leg. Bense U. (Gebhardt and Bense 2016).

**Comment.** This species was originally described from Kashmir (Strohmeyer 1908) and was first collected in Europe in 1975 in France (Schott 2016). It was collected in Switzerland in 1980 (Knížek 2011b) and found again in 2001 and 2004, each time in the north. The species is now considered established in Europe (Kirkendall and Faccoli 2010). The host plants are unknown in Switzerland because all specimens were captured in flight by interception traps but given what is known about its host plant preference in general, it likely develops on *Juglans* trees (Foit et al. 2017).

### C15) [*Lymantor aceris aceris*] (Lindemann, 1875)

**Published data.** [1)]Schweiz [Switzerland] (Pfeffer 1995); [1)]Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** *Lymantor aceris aceris* is widespread in Europa and develops mostly on different species of maple trees (*Acer* spp.) but also on buckthorn (*Frangula alnus* Mill.) and cornelian cherry (*Cornus mas* L.), in symbiosis with fungus. Even though the species was cited in the literature, no specimens supporting its presence in Switzerland were found in the collections examined. However, given its distribution in neighboring countries, particularly in France (Schott and Callot 1994; Dodelin 2014), its presence in Switzerland remains possible.

### C16) *Taphrorychus siculus* (Eggers, 1908)

Fig. 1B

**Examined material.** 5 ex., Locarno TI, 6.VIII.1950, 10.IX.1950, leg. Besuchet C., det. Pfeffer A., MHNG; 14 ex., Tessin, Arcegno, 8.IX.1953, leg. Besuchet C., det. Pfeffer A., MHNG.

**Published data.** Südschweiz (Pfeffer 1995); Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** Despite its sparse distribution in Europe (only known from Bosnia and Herzegovina and Sicily), this very rare species, which breeds on alders (*Alnus* spp.), is considered as a resident of Switzerland on the basis of several individuals caught in southern Ticino in the 1950s under the bark of alder trees. Since then, it has not been found in the country. *T. siculus* was not reported by Bovey (1987).

### C17) *Thamnurgus kaltenbachii* (Bach, 1849)

Fig. 1C

**Examined material.** 1 ex., Generoso, 6.VI., leg. & coll. Fontana P., MSNL; 1 ex., Genève, B. Veyrier, IV.1953, leg. & coll. Toumayeff G., MHNG.

**Published data.** Generoso and [1)]Chiasso by Fontana P. (Fontana 1947); Monte Generoso TI by Fontana P. and Bois de Veyrier GE, III.1953 by Toumayeff G. (Bovey 1987); Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2010).

**Comment.** Two specimens only, from the south of the country, confirm the presence of this rare species in Switzerland. *T. kaltenbachii* is limited to Central Europe and his presence in France was also confirmed (Prudhomme J.-C. 2016, Dodelin B. pers. comm.). Within the bark beetles, *T. kaltenbachii* develops on herbaceous plants only (stems of Lamiaceae in this case), as do other members of the same genus (Mandelshtam et al. 2012).

### C18) [*Hylastes fallax*] Wichmann, 1911

**Published data.** [1,8)]1 ex., Olten (Wermelinger B. pers. comm. in Germann 2010a); [1,8)]Switzerland (Knížek 2011a). All published data under *Hylastes gergeri* Eggers, 1911.

**Comment.** This species was cited from Switzerland on the basis of one specimen supposedly caught in Switzerland in 1994 in the region of Olten. Nevertheless, this species is not considered as part of the Swiss fauna at the present time. The only mentioned specimen is unverifiable and additional data must be gathered to confirm the presence of this species in Switzerland. *Hylastes fallax* is only known from eastern Europe (Czech Republic, Romania, Slovakia, eastern Austria and eastern Italy). Its host plants are unknown.

### C19) *Kissophagus novaki* Reitter, 1894

**Examined material.** 2 ex., Genève, Mategnin, 4.V.1963, 15.V.1968, leg. Besuchet C., MHNG; 1 ex., Vaud, Roche, 27.VI.1970, leg. & coll. Scherler P., NMBE; 1 ex., Vandoeuvres GE, 27.VI.1974, leg. Besuchet C., Bovey P., MZL; 2 ex., Genève, Vandoeuvres, 27.VI.1974, leg. Besuchet C., MHNG; 1 ex., Genève, Vernier, 13.III.1976, Besuchet C., MHNG; 1 ex., Genève, Genève-Florissant, 12.VI.1987, leg. Steffen J., MHNG; 1 ex., Genève, La Laire, 23.VI.1988, leg. Steffen J., MHNG; 1 ex., Valais, s/ Fully, 1.IV.1994, leg. Besuchet C., MHNG; 1 ex., Genève, Corsier-Port, 23.V.1994, Besuchet C., MHNG; 1 ex., Martigny, La Bâtiaz, 23.XII.2009, leg. & coll. Germann C.

**Published data.** 1 ex., Fully VS, 1.IV.1994, leg. Besuchet C., MHNG, 1 ex., Martigny, La Bâtiaz, N571.490/ E106.080, 520 m ü. NN, 23.XII.2009, GS Moos, Polsterpflanzen, Grasbulten, leg. & coll. Germann C. (Germann 2010b); Switzerland (Bovey 1987; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species developing on ivy (*Hedera helix*) is only known in Switzerland from very few records from the south of the country, the most recent in 2009 (Germann 2010b). *Kissophagus novaki* is widely distributed in Europe, from southern France to the Caucasus.

### C20) *Pteleobius kraatzii* (Eichhoff, 1864)

**Examined material.** 2 ex., Kt. Genf, Allondon, VI.1954, leg. & coll. Linder-Hebeisen A., ETH; 10 ex., Kt. Genf, Genf [Geneva], VI.1954, leg. & coll. Linder-Hebeisen A., ETH; 7 ex., La London [Allondon], VI.1954, leg. [Besuchet C.], coll. Sermet A., MZL; 8 ex., Genève, Allondon, 24.VI.1954, leg. & coll. Scherler P., NMBE; 54 ex., Genève, London [Allondon], 27.VI.1954, leg. Besuchet C., MHNG; 3 ex., V. Allondon GE, 27.VI.1954, leg. Scherler P., coll. Allenspach V., NMB; 1 ex., Kt. Genf, Meyrin, VIII.1966, leg. & coll. Linder-Hebeisen A., ETH; 1 ex., Genève, Jussy, 24.V.1968, leg. Besuchet C., MHNG; 3 ex., Genève, Bois de Jussy, 25.VI.1968, leg. Besuchet C., MHNG; 15 ex., Jussy GE, 31.VII.1968, leg. Besuchet C., coll. Bovey P., MZL; 1 ex., Genève, Jussy, 31.VII.1968, leg. Besuchet C., MHNG; 9 ex., Genève, Vandoeuvres, V.1974, leg. Vit S., MHNG; 9 ex., Genève, Jussy, VII.1974, leg. Besuchet C., coll. Bovey P., MZL; 4 ex., Genève, Jussy, 4.VII.1974, leg. Besuchet C., MHNG; 1 ex., Genève, Corsier-Port, 8.VI.1981, leg. Besuchet C., det. Bovey P., MHNG.

**Published data.** 60 ex., La Plaine GE, 27.VI.1954, leg. Besuchet C., Scherler P. & Sermet A. (Linder 1968); Switzerland (Bovey 1987; Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species, widely distributed in central and western Europe, has only been found in the Geneva region in Switzerland until now. Most of the specimens were caught on trunks of elm species. *Pteleobius kraatzii* mainly develops mainly on *Ulmus laevis* and *U. minor*.

### C21) *Pteleobius vittatus* (Fabricius, 1792)

**Examined material.** 7 ex., Castello, leg. & coll. Fontana P., MSNL; 1 ex., Castello, 11.V.1926, leg. & coll. Fontana P., MSNL; 2 ex., Chiasso, 12.IV.1928, 17.V.1928, leg. & coll. Fontana P., MSNL; 18 ex., Genève, La Plaine, X.1958, leg. Besuchet C., MHNG; 1 ex., Genève, Meyrin, 2.IV.1966, leg. Besuchet C., MHNG; 6 ex., Kt. Genf, Meyrin, VIII.1968, leg. [Besuchet C.], coll. Linder-Hebeisen A., ETH; 6 ex., Meyrin GE, VIII.1968, leg. Besuchet C., coll. Bovey P., MZL; 6 ex., Genève, Meyrin, VIII.1968, leg. Besuchet C., MHNG; 1 ex., Bel-Air, Clinique GE, 11.II.1973, MHNG; 16 ex., Genève, Jussy, 19.VI.1973, 5.VI.1974, VII.1974, leg. Besuchet C., coll. Bovey P., MHNG & MZL; 1 ex., Genève, Onex, 30.VI.1974, leg. Besuchet C., MHNG; 8 ex., Allschwil BL, V.1978, leg. Angst M. E., coll. Bovey P., MZL; 7 ex., Allschwil BL, VII.1978, leg. Angst M., NMB; 1 ex., Valais, Branson, V.1980, leg. Anonymous, MHNG; 1 ex., Habsburg AG, 1.–8.V.2001, leg. WSL; 2 ex., Fully VS, 24.III.2015, 24.III.–16.IV.2015, leg. Chittaro Y., det. Büche B.

**Published data.** [1)]Genf [Geneva] by Chevrier F. and [1)]Peney bei Genf [Geneva] by Tournier H. (Stierlin and Gautard 1867); [1)]Basel (Sterlin 1898); Chiasso and Castello S. P. [Castello San Pietro] by Fontana P. (Fontana 1947); Switzerland (Bovey 1987; Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** *Pteleobius vittatus* breeds on several species of elm (especially *Ulmus minor*, *U. laevis*). In Switzerland, it is mainly known from the south of the country (Geneva, Valais, Ticino) and has almost always been found on elms.

### C22) *Hylurgus ligniperda* (Fabricius, 1787)

**Examined material.** 4 ex., Sierre, leg. Favre E., HGSB; [3)]1 ex., St. Gallen, leg. Anonymous, coll. Täschler M., MHNG; 1 ex., Kt. Bern, Bern, IV.1886, leg. Anonymous, coll. Linder-Hebeisen A., ETH; 1 ex., Avants, 18.V.1901, leg. & coll. Gaud A., MZL; 1 ex., Kt. SZ, Ober-Iberg, VIII.1938, leg. Lautner J., coll. Linder-Hebeisen A., ETH; 1 ex., Mte. Ceneri, 16.V.1951, leg. Anonymous, coll. Spälti A., MHNG; [3)]2 ex., Alpes, Villars, 2.VII., leg. & coll. Maerky C., MHNG; 23 ex., B. d. Frères [Bois des Frères], 20.X.1874, leg. Anonymous, det. Besuchet C.

**Published data.** [1)]Jura, Vallorbe by Mellet P. (Stierlin and Gautard 1867); [1)]Jura, [1)]Westschweiz and [1)]Wallis (Stierlin 1898); [1)]Simplon by Rosset F.-C. (Rosset 1879); [1)]Bois de Finge and Sierre by Favre E., [1)]Sion by Bugnion E., [1)]Genève and [1)]Vaud (Favre 1890); Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This pine-associated (*Pinus* spp.) species is widely distributed in Europe, North Africa and Asia and is considered a pest in many regions (Clare and George 2016). It is, however, only known from a few records in Switzerland. All specimens have been caught under the bark of pine trunks, according to the scant ecological information available.

### C23) *Hypoborus ficus* Erichson, 1836

**Examined material.** 12 ex., Castello, leg. Fontana P., det. Bovey P., MSNL; [8)]1 ex., Onnens [VD], leg. Anonymous, coll. Sermet A., MZL; 4 ex., Tessin, leg. & coll. Lautner J., NMB; 1 ex., Chiasso, 25.VIII.1928, leg. Fontana P., MSNL; 54 ex., Tessin, Gandria, IV.1943, 3.III.1948, 3.IV.1948, IV.1948, leg. Besuchet C., col. Sermet A., coll. Scherler P. & coll. Linder-Hebeisen A., MZL, MHNG, NMBE, ETH; 1 ex., Dalpe, 17.VI.–2.VII.1957, leg. & coll. Allenspach V., NMB; 20 ex., Dino, 10.–19.VI.1963, leg. & coll. Allenspach V., NMB; 1 ex., 18.VIII.1966, Rancate, leg. Anonymous, coll. Sermet A., MZL; 7 ex., Tessin, Rancate, 7.IX.1966, 18.IX.1966, leg. & coll., Scherler P., NMBE; 121 ex., Tessin, Caviano, 10.VII.1975, VII.1975, leg. Besuchet C., coll. Bovey P. & coll. Scherler P., MHNG, MZL, NMBE; 15 ex., Tessin, s/Rovio, 21.VIII.1975, leg. Besuchet C., MHNG; 6 ex., S. Nazzaro, IX.1993, leg. & coll. Kutter-Trüb H., MZL; 4 ex., S. Nazzaro, IX.1993, leg. Allenspach V., det. Bovey P., ETH.

**Published data.** Chiasso, Castello and Chiasso Tannino by Fontana P. (Fontana 1947); Switzerland (Bovey 1987; Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** Native to the Mediterranean region and the Canary Islands, this monophagous species developing on *Ficus carica* has been reported many times from the south of Ticino, where most introduced fig trees are concentrated. Since the species has been reported regularly for more than 90 years, we consider it here as established in Switzerland, even if no observations exist since 1993. Furthermore, based on the numerous fig trees in gardens in other parts of Switzerland, continued expansion of *H. ficus* towards the north can be expected.

### C24) [*Liparthrum bartschti*] Mühl, 1891

**Published data.** [2,8)]Periv, 17.VII.1919 by Handschin E. (Handschin 1963).

**Comment.** This species is only known from eastern Europe (east Austria, Slovakia and Hungary) and is not present in Switzerland. The specimen cited in literature was a *Polygraphus grandiclava*, as already shown by Bovey (1987). *Liparthrum bartschti* develops on *Viscum album* growing on *Populus* spp.

### C25) *Ips duplicatus* (C. R. Sahlberg, 1836)

**Examined material.** 194 ex., Altstätten SG, 25.IV.2019, 05.VI.2019, 15.VII.2019, leg. WSL, det. Schneider Mathis D.; 5 ex., Gams SG, 25.IV.2019, 15.VII.2019, leg. WSL, det. Schneider Mathis D.; 175 ex., Rüthi SG, 25.IV.2019, 25.VII.2019, leg. WSL, det. Schneider Mathis D.

**Published data.** [2)]Craistas, 4.V.1953, [2)]Il Fuorn, 19.V.1953, [2)]Sta. Maria, 22.V.1953 and [2)]Costeras, 20.VI.1953 by Handschin E. (Handschin 1963).

**Comment.** Bovey (1987) has already shown that the four specimens cited by Handschin (1963) were in fact two individuals of *Ips amitinus* and two individuals of *I. cembrae*. *Ips duplicatus*, originally distributed in northern Europe and Siberia, was previously rare in Central Europe. A recent serious outbreak in Czech Republic is currently colonizing Europe toward the west and the species was discovered in 2017 in Rankweil (Austria), only a few kilometers from the Swiss border (Steyrer 2018). In 2019, numerous specimens were caught in the St. Gall region using pheromone traps (Wermelinger B. pers. comm.). This species is expected to increase its distribution in Switzerland in the next years.

### C26) [*Orthotomicus erosus*] (Wollaston, 1857)

**Examined material.** [3)]1 ex., Genève, Vessy, 3.VII., leg. & coll. Maerky C., det. Bovey P., MHNG.

**Published data.** [2)]zwischen Derborence und Ardon, VIII.1949 by Besuchet C., det. Balachowsky A. (Linder 1953); [3)]1 ex., Vessy GE, 1920 by Maerky C., MHNG (Bovey 1987); [3)]Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** The Mediterranean pine engraver beetle, native to North Africa, Asia and the Pacific, is now well distributed in Europe and North America. It develops on different species of pine (*Pinus* spp.) and may cause damage in pine forests. Unlike Bovey (1987) and Germann (2010a), we do not consider *O. erosus* as part of the Swiss fauna because the only examined specimen belongs to a problematic collection that cannot be taken in account. The data cited by Linder (1953) was a misidentification (the specimen in question was in fact *O. proximus*), as already mentioned by Bovey (1987). However, as *O. erosus* is known from all neighboring countries (except Germany), its presence in Switzerland remains possible.

### C27) [*Orthotomicus mannsfeldi*] (Wachtl, 1879)

**Examined material.** [1,8)]1 ex., Habsburg AG, 5.-12. IX.2000, leg. WSL, det. Hölling D.

**Published data.** [1,8)]1 ex., Habsburg AG, 2000 by WSL (Germann 2010a).

**Comment.** This species is well distributed in southern Europe and has been reported once from Switzerland. As only one specimen was found despite regular monitoring in the region and because its host plant (*Pinus nigra*) is not a native species in Switzerland, *O. mannsfeldi* is not considered as Swiss at the moment. It should be noted that the specimen caught is unfortunatly no longer available for consultation.

### C28) [*Pityogenes bistridentatus*] (Eichhoff, 1878)

**Published data.** [1)]Forêt d'Aletsch, [1)]Engadine by Bugnion E. and [1)]Grindelwald by Mühl (Favre 1890); [2)] S-chanf, 8.VII.1919, [2)]Val Trupchum, 8.VII.1919 and [2)]Val dal Botsch, VII.1926 by Handschin E. (Handschin 1963); [1)] Switzerland (Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** Some *Pityogenes* spp. conserved in Swiss collections were first identified as *P. bistridentatus*. However, after examination, it appears that all these specimens were in fact *P. conjunctus*, as already noted by Bovey (1987), Pfeffer (1995) and Germann (2010a). Therefore, *P. bistridentatus* is not considered part of the Swiss fauna.

### C29) [*Pityogenes irkutensis monacensis*] A. G. Fuchs, 1911

**Published data.** [1)]Switzerland (Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species, mainly known from eastern Europe and developing on pine (*Pinus sylvestris*), is not considered a Swiss species at present. Although its presence remains possible in eastern Switzerland, no specimens were found in the examined collections.

### C30) [*Phloeotribus cristatus*] (Fauvel, 1889)

**Examined material.** [1,4,8)]1 ex., Sierre, Guillebeau F., Muséum national d'Histoire naturelle (Paris).

**Published data.** [1,4,8)]Valais, Sierre (Guillebeau 1893); [1,4,8)]Sierre (Valais) (Bovey 1987); [1,4,8)]Westschweiz (Pfeffer 1995); [1,4,8)]Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** A specimen of *P. cristatus* supposedly captured in "Sierre (Valais)" at the end of the 19th century was used to describe a new species (*P. helveticus* Guillebeau, 1893), later synonymized with *P. cristatus* by Pfeffer (1995). This taxon is known from northern Spain and the Canary Islands, southern France and Corsica, Italia and Sardinia, Bosnia and Herzegovina, Turkey, Algeria, Madeira, and Morocco and develops on *Spartium junceum*, *Cytisus scoparius*, *Calicotome villosa* (Poir.) Link, *C. spinosa* (L.) Link, *Genista* spp. and *Lygos* spp. Given the scant data available (inaccurate locality without date of capture, absence of collector and the fact that the species was never found again since the first and only capture), the near absence of its host plants in Valais (according to the records of info flora) and the Mediterranean distribution of the species, *P. cristatus* is not considered Swiss for the moment. However, the species was recently confirmed in northern Italy (Gatti 2011) and therefore has potential for expansion into Switzerland, most likely in Ticino (south of Switzerland).

### C31) *Polygraphus subopacus* C. G. Thomson, 1871

Fig. 1D

**Examined material.** 1 ex., U. Zürich(berg), 4.III.1932, leg. & coll. Lautner J., MHNG; 5 ex., U. Zürich(berg), 9.IV.1932, leg. & coll. Lautner J., NMB; 1 ex., Domleschg, Realta, 13.V.1940, leg. Wolf J.-P., MHNG; 1 ex., Bern, 29.IX.1949, leg. Bärtschi, NMBE; 1 ex., Ins, Landvirtsch. Schule [Landwirtschaftliche Schule], 11.VIII.1980, leg. Reser-Rezbanyai L., det. Herger P., NMLU.

**Published data.** [1)]Valais and [1)]région de Bâle (Balachowsky 1949); Switzerland (Bovey 1987; Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species, well distributed in the northern Europe, is only known from a few confirmed records in Switzerland. According to Pfeffer (1995) and Balachowsky (1949), *P. subopacus* breeds on several species of spruce (probably *P. abies* in Switzerland) in the mountains and in peat bogs.

### C32) *Scolytus carpini* (Ratzeburg, 1837)

**Examined material.** 1 ex., Genève, Onex, 16.VI.1974, leg. Besuchet C., MHNG; 1 ex., Genève, Frontenex, 1.VI.1980, leg. Besuchet C., MHNG; 1 ex., Mte San Giorgio TI, 7.VI.1982, leg. & coll. Scherler P., NMBE; 2 ex., Genève, B. de Jussy, 30.VI.1983, leg. Besuchet C., MHNG; 6 ex., Valais, Eich/Visp, 12.IX.1984, leg. Besuchet C., MHNG; 1 ex., Arzo TI, 30.VI.1988, leg. & coll. Scherler P., NMBE; 1 ex., Vaud, Bonvillars, La Coudre, 6.VII.1988, leg. Steffen J., MHNG; 1 ex., Cragno TI, 30.VI.1990, leg. & coll. Scherler P., NMBE; 1 ex., Tessin, s/Capolago, 24.VI.1991, leg. & coll. Scherler P.,

NMBE; 2 ex., Genève, Bois de Jussy, 21.VII.1991, leg. Besuchet C., MHNG; 14 ex., Hägendorf SO, 30.VI.–7.VII.1994, 7.–14.VII.1994, 14.–21.VII.1994 and 28.VII.–4.VIII.1994, leg. Flückiger P.; 3 ex., Rickenbach SO, 30.VI.–7.VII.1994, 6.–13.VII.1994, leg. Flückiger P.; 6 ex., Wangen bei Olten AG, 30.VI.–7.VII.1994, 7.–14.VII.1994, leg. Flückiger P.; 2 ex., Brissago TI, 28.IV.–5.V.1997, 10.–17.VI.1997, leg., Moretti M.; 1 ex., Locarno TI, 10.–17.VI.1997, leg. Moretti M.; 1 ex., Genève, Champel, 12.VII.1998, leg. Besuchet C., MHNG; 1 ex., Brugg AG, 28.VI.–5.VII.2004, leg. Wermelinger B.; 1 ex., Pura TI, 29.VI.–6.VII.2004, leg. Moretti M.; 63 ex., Soazza GR, 6.–13.VII.2004, 13.–20.VII.2004, leg. Moretti M.; 3 ex., Tägerwilen TG, 14.IV.2016, 27.VI.2016, leg. & coll. Löderbusch W., det. Bense U.

**Published data.** [1)]Zürich (Stierlin 1898); Switzerland (Bovey 1987; Germann 2010a; Knížek 2011a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species, closely related to *S. intricatus* but much rarer, is widespread in southern and central Europe. Polyphagous on various broadleaved species (mostly *Carpinus* spp. and *Ostrya carpinifolia* but also *Corylus avellana*, *Fagus sylvatica* and *Quercus* spp.), *S. carpini* is widely distributed in Switzerland but rarely found. The Swiss specimens for which ecological data are available were caught from *Carpinus betulus* and *Corylus avellana*.

### C33) *Scolytus ensifer* Eichhoff, 1881

**Examined material.** 1 ex., Meride TI, 27.VI.1987, leg. & coll. Scherler P., NMBE.

**Published data.** 1 ex. Tessin, Meride, 27.VI.1987, leg. P. Scherler, NMBE (Germann 2009); Switzerland (Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species is considered Swiss on the basis of a single specimen found in southern Ticino more than 30 years ago. It is distributed throughout central Europe, from France to the Caucasus. *Scolytus ensifer* develops on different species of alder (*Ulmus* spp.), but also on *Prunus* spp. (Balachowsky 1949).

### C34) *Scolytus kirschii kirschii* Skalitzky, 1876

Fig. 1E

**Examined material.** [3)]1 ex., Bâle, IX.1907, leg. & coll. Gaud A., MHNG; 1 ex., Suisse, Tessin, Lago di Muzzano, 24.VI.1988, leg. & det. Besuchet C., MHNG.

**Published data.** [1)]Schweiz by Fankhäuser F. (Stierlin 1898); 1 ex. (female), Lago di Muzzano TI, 24.VI.1988, leg. & det. Besuchet C., MHNG (Germann 2010b); Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** *Scolytus kirschii kirschii* was first mentioned from Switzerland by Stierlin (1898), on the basis of a single specimen collected by Fankhäuser F., without a precise locality. However, the specimen was not found in the Swiss collections and Bovey (1987) considered it as doubtful. Nevertheless, a single female was caught the following year on an elm in Muzzano and is now deposited in the MHNG collections, which confirms its native status (Germann 2010b). The specimen from "Bâle" belongs to a problematic collection that should not be taken into account. Developing on *Ulmus minor* mostly, but also in *U. laevis* and U. glabra, this species is rare in Switzerland, like most of other species developing on elm.

### C35) [*Scolytus triarmatus*] (Eggers, 1912)

**Published data.** [1)]1 ex., Bern, VI.1907, leg. Müller, col. Hane, Bundesgymnasium Bludenz, Vorarlberg, Österreich (Brandstetter and Kapp 1998); [1)]Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species was announced as new for Switzerland by Brandstetter and Kapp (1998), on the basis of a single specimen labeled from Bern in 1907 by Müller A. J. and deposited in the collection of Hane K. in Austria. However, we were not able to examine this specimen and the information on the label is so incomplete that it is not possible to consider this species as native to Switzerland at this time. *Scolytus triarmatus*, a monophagous species developing on *Ulmus glabra* is present in central and east Europe and therefore has the potential to expand into Switzerland.

### C36) *Cyclorhipidion bodoanum* (Reitter, 1913)

**Examined material.** 3 ex., Genève, Charrot, VI.–VII.1994, leg. Besuchet C., MHNG; 1 ex., Genève, Avully, VII–VIII.1994, leg. Besuchet C., MHNG; 4 ex., Genève, Louvière, VII–VIII.1994, leg. Besuchet C., MHNG; 3 ex., Vaud, Duillier, VII.–VIII.1994, leg. Besuchet C., MHNG; 3 ex., Genève, B. de Versoix, VI.–VII.1995, leg. Besuchet C., MHNG; 2 ex., Pura TI, 23.–30.IV.2013, 18.–25.VI.2013, Moretti M.; 112 ex., Rapperswil-Jona SG, 7.V.2015, 28.V.2015, 18.VI.2015, 7.VII.2015, 27.VII.2015, 20.VIII.2015, leg. Huber B., det. Büche B; 8 ex., Oberentfelden AG, 28.IV–5.VIII.2015, leg. Moser S., det. Bense U.; 11 ex., Villigen AG, 28.IV.–5.VIII.2015, leg. Moser S., det. Bense U.; 34 ex., Wittnau AG, 28.IV.–19.VIII.2015, leg. Moser S., det. Bense U.; 1 ex., Balm bei Günsberg SO, 10.IV.–2.V.2018, leg. & coll. Chittaro Y.; 1 ex., Orvin BE, 18.VII–14.VIII.2018, leg. Juillerat L., col. Sanchez A.; 1 ex., Delémont JU, 21.VI.–11.VII.2018, leg. Wermeille E., coll. Sanchez A.; 1 ex., St-Gingolph VS, 31.V.–14.VI.2019, leg. & coll. Chittaro Y.

**Published data.** "Schweiz, bei Genf [Genève], MHNG", Pfeffer pers. comm. (under *Xyleborus peregrinus* Eggers 1944) (Köhler 1992); Switzerland (under *Xyleborus punctulatus* Kurentzov) (Wittenberg 2006); Switzerland (Germann 2010a; Kirkendall and Faccoli 2010; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This invasive species, native to South Asia and now present in North America and Europe (especially in Belgium, Germany, France, Italy and the Netherlands), is considered as established in Switzerland

on the basis of some occurrences in the north and west of the country. It develops on different species of Fagaceae (Kirkendall and Faccoli 2010). The quick expansion of *C. bodoanum* in Europe allows for the possibility of a similar expansion for *Cyclorhipidion fukiense* (Eggers, 1941), a species native to south-east Asia, which is already present only about 100 km from the Swiss border (Dodelin B. pers. comm.) and will likely spread to Switzerland as well.

### C37) *Heteroborips cryptographus* (Ratzeburg, 1837)

Fig. 1F

**Examined material.** 2 ex., Yvonand, 1944, V.1972, col. Sermet A., MZL; 162 ex., Genève, Chancy, 22.VI.1974, 2.VII.1974, 7.VII.1974, 27.VII.1974, VIII.1974, 1.IX.1974, I.1975, 13.VII.1983, leg. Besuchet, coll. Bovey P., MHNG, MZL; 5 ex., Genève, B. de Jussy, 30.VI.1983, leg. Besuchet C., coll. Bovey P., MZL.

**Published data.** [1)]Chiasso by Fontana P. (Fontana 1947); Chancy, 1974 by Besuchet C. (Bovey 1987); Switzerland (Germann 2010a; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** *Heteroborips cryptographus* is widely distributed in Europe but always rare. In Switzerland, the species was only found a few times in the 1970s and 1980s, always under bark or on branches of aspen (*Populus tremula*), which corresponds to the ecology of this species described in the literature (*P. tremula*, *P. nigra*, *P. alba*).

### C38) *Xyleborinus attenuatus* (Blandford, 1894)

**Examined material.** 3 ex., Thurg., Kesswil, 27.VII.1986, leg. Besuchet C., MHNG; 1 ex., Frauenfeld, Ochsenfurt, 12.III.1989, leg. & coll. Brägger H.; 1 ex., Rickenbach/SO, Hügert, 6.–13.III.1995, leg. WSL; 1 ex., Rickenbach/SO, Wisshubelallmend, 6.–13.III.1995, leg. WSL; 33 ex., Lostorf, 6.–13.III.1995, 6.–13.IV.1995, 6.–13.IX.1995, 6.–13.X.1995, leg. WSL; 10 ex., Messen, 6.–13.III.2001, 6.–13.IV.2001, 6.–13.III.2004, leg. WSL; 7 ex., Sarmenstorf, 6.–13.III.2004, leg. WSL; 3 ex., Habsburg AG, 6.–13.III.2001, 6.–13.III.2004, leg. WSL; 1 ex., Breil/Brigels GR, 30.III.–18.IV.2015, leg. Chittaro Y., coll. Sanchez A.; 1 ex., Vergelleto TI, 7.IV.2014, leg. & coll. Chittaro Y.

**Published data.** [2)]193 ex., Naturschutzgebiet Wildenstein (BL), 2000, leg. Walter T. (Walter et al. 2003); Switzerland (Wittenberg 2006; Germann 2010a; Kirkendall and Faccoli 2010; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** This species native to eastern Asia and colonizing Europe is considered indigenous to Switzerland on the basis of only a few specimens. The specimens from Kesswil were captured on *Fagus sylvatica*, while the individuals from Olten were captured using traps. The records from Wildenstein published by Walter et al. (2003) were eventually shown to belong to *X. saxesenii*. This species was not mentioned by Bovey (1987).

### C39) *Xyleborus eurygraphus* (Ratzeburg, 1837)

**Examined material.** 6 ex., Irchel, [IX.1933], leg. Lautner J., det. Bovey P.; 1 ex., Crêt du Locle, 30.III.1946, leg. Anonymous, MHNG.

**Published data.** 6 ex., Zürich-Irchel, IX.1933, col. Lautner J., NMB (Bovey 1987); Switzerland (Germann 2010a, Knížek 2011a, Alonso-Zarazaga et al. 2017).

**Comment.** This species occurs from Spain to the Caucasus and North Africa but is always rare in Central Europe (more common in southeastern Europe) (Schedl 1966). *Xyleborus eurygraphus*, which develops on different species of pine (*Pinus* spp.), is considered native to Switzerland on the basis of some specimens captured in the north of the country in the 1930s and 1940s. It has therefore not been found for more than 70 years in Switzerland. The specimens from Irchel, supposedly deposited in the NMB, were not found in these collections.

### C40) *Xyleborus pfeilii* (Ratzeburg, 1837)

**Examined material.** 1 ex., Roulave, VIII.1991, leg. Besuchet C., MHNG.

**Published data.** [1)]Unterwalden (Stierlin 1898); [1)] Switzerland (Bovey 1987; Germann 2010a; Kirkendall and Faccoli 2010; Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** *Xyleborus pfeilii* is an exotic species from east Asia, now also distributed in Eastern Europe. Always rare, this species was only found once in Switzerland. It was, rather surprisingly, discovered in a beer trap placed in an oak tree (*Quercus* spp.), although the species is known to breed on alder (*Alnus* spp., *A. glutinosa*) and aspen (*Populus tremula*). Since 1991, it has not been found in Switzerland.

### C41) *Xylosandrus crassiusculus* (Motschulsky, 1866)

**Examined material.** 1 ex., Pura TI, 16.–23.IV.2013, leg. WSL; 1 ex., Caslano TI, 12.VI.2019, leg. WSL, col. A. Sanchez.

**Comment.** This species, originally distributed in Asia, was introduced many times in the world and was first discovered in Europe in Italy in 2003 (Penacchio et al. 2003) and later in France in 2014 (source OEPP, Organisation européenne et méditerranéenne pour la protection des plantes). *Xylosandrus crassiusculus* is a polyphagous species developing in many deciduous tree species. Even if it is considered as pest species that could cause serious damages in broadleaved forests (particularly in chestnut trees), only two specimens were found in Switzerland since the first occurrence in 2013.

### C42) *Trypodendron laeve* Eggers, 1939

**Examined material.** 7 ex., Grisons, Zernez, Ova Spin, 4.VIII.1974, leg. Besuchet C., MHNG.

**Published data.** 7 ex., Zernez, Ova Spini GR, 4.VIII.1974, 1900 m ü. NN, leg. Besuchet C., MHNG (Germann 2010b); Switzerland (Knížek 2011a; Alonso-Zarazaga et al. 2017).

**Comment.** Native to southern China, Japan and Korea (Lukášová et al. 2012), *T. laeve*, which develops on different species of pine, is now also distributed in eastern, central and northern Europe. The status of this species is still unclear in Europe, with some authors considering it indigenous while others consider it an alien (Kirkendall and Faccoli 2010; Lukášová et al. 2012). In Switzerland, only seven individuals were caught on a pine trunk (*Pinus mugo*) in eastern Graubünden in the 1970s and it has not been found since then. Surprisingly, the specimens were captured in August, which does not correspond with the early phenology reported in the literature (Lukášová et al. 2012; Lukášová and Holuša 2014; Olenici et al. 2018). Even if it is here assumed that *T. laeve* is established in Switzerland, additional catches, with pheromone traps baited for *T. lineatum*, would be welcome to confirm this assumption. *Trypodendron laeve* flies slightly earlier in the summer than *T. lineatum* but can also be found in late summer (second generation).

## Discussion

This commented list on the Swiss Scolytinae and Platypodinae is in keeping with other syntheses on various beetle families published in the past years (Marggi and Luka 2001; Carron 2005; Carron 2008; Luka et al. 2009; Germann 2010a; Chittaro and Blanc 2012; Reibnitz et al. 2013; Monnerat et al. 2015b; Breitenmoser et al. 2016; Chittaro and Sanchez 2016, 2019a, b; Cosandey et al. 2017; Sanchez and Chittaro 2018). It thus contributes to improve the overall understanding of Swiss fauna. Thanks to the distribution maps based on the collected data (available on the info fauna – CSCF cartographic server, www.cscf.ch), this work provides a thorough faunistic overview on the current understanding of the species of Scolytinae and Platypodinae.

Scolytinae are represented by 112 species in Switzerland, while Platypodinae are represented by only one species. Compared to the previous national lists (Bovey 1987; Germann 2010a), several species have been removed while others are added to the list of native species. Certain species (e.g. *Orthotomicus erosus*, *Phloeotribus cristatus*) removed from the lists belong to problematic collections for which we now have enough elements to not consider them (Monnerat et al. 2015a) as belonging the Swiss fauna. Other species (e.g. *Coccotrypes dactyliperda*, *Pagiocerus frontalis*) are not retained for Switzerland because their presence result of accidental importations without proof of permanent establishment of the species, a common phenomenon in the subfamily Scolytinae. Concerning the additional species (e.g. *Pityophthorus buyssoni buyssoni*, *Taphrorychus siculus*), most of them were collected before the publications of Bovey (1987) and Germann (2010a) but were not mentioned. The Scolytinae are represented by a very large number of specimens in the museum collections and it is therefore not surprising that some rare and cryptic species have gone unnoticed. Other species (*Ips duplicatus*, *Xylosandrus crassiusculus*) were not present in Switzerland when these papers were published.

Members of the subfamily Scolytinae are known to be very effective at colonizing new areas and many can be invasive species (alien species) in Europe (Kirkendall and Faccoli 2010). Some have already settled in central Europe and now form populations in natural environments (e.g. *Cyclorhipidion bodoanum*, *Dryocoetes himalayensis*, *Xyleborinus attenuatus*, *Ips duplicatus*), while others are at the gateway to Switzerland and will very likely settle here in the next few years. *Xyloterinus politus* (Say, 1826), a North American species that develops in various broadleaved trees, is already established in France and Germany (Dodelin and Saurat 2017; Gebhardt and Doerfler 2018). *Cyclorhipidion fukiense*, a south-east Asian species also present in North America (Hoebeke et al. 2018), is already established in France. Many specimens have indeed been caught close to the Swiss border near Geneva in the west of the country (Savoie and Isère, Dodelin 2018). *Ambrosiophilus atratus* (Eichhoff, 1875), an Asian invasive species extremely polyphagous, is present in Italy since 2007 (Faccoli 2008) and in France since 2018 (Dodelin B. pers. comm.). It is expected to be already also present in Switzerland. Because Scolytinae can cause significant damage to forests, specific research should be conducted throughout the country, and more specifically along border areas, to rapidly identify species that may settle in Switzerland. Pheromone traps could be useful in discovering these new species.

Some native bark beetle species may be inconspicuous and thus difficult to detect. *Scolytus koenigi* (Schevyrew, 1890), a very rare species that grows exclusively on small branches of maple trees (*Acer* spp.), may in fact be present in Switzerland. More widely distributed in the Mediterranean region, it is also present in Central Europe in the most thermophilic regions. In neighboring countries, it has been confirmed from France, Italy and Austria (Dodelin 2009; Sarikaya and Knížek 2013).

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# Supplementary material 1

## File S1.

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Data type: reference data

Explanation note: Publications for which data have been fully collected, but which are not explicitly quoted in the text.

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